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EXAMINER	
GREEN, RICHARD R	

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3644	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/582,700	EICHHOLZ ET AL.	
	Examiner	Art Unit	
	Richard R. Green	3644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 July 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 July 2008* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The amendment filed 7/16/2008 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

"Figure 1 shows feed lines 33 and 35, respectively, for connecting the first hollow chambers 26 and the second hollow chambers 32 to the engine for receiving hot bleed air." (proposed addition to page 7) There is no support in the original disclosure for an additional, separate feed line connecting the second hollow chambers to the engine.

"If desired, as shown schematically in figure 3, a ventilator 39 may be used to generate a forced flow through the first hollow ventilator 26." (proposed addition to page 8) There is no support in the original disclosure for a ventilator generating a forced flow through another, hollow ventilator.

In the replacement figure 1, elements 33 and 35 with arrows drawn from the floor and the cargo door towards the engine indicating a fluid flow in that direction represent matter not supported by the original disclosure.

In the replacement figure 2, the designation of number 43 for an element previously assumed to correspond with element 40 represents new matter. Although the original disclosure provides for "conventional electric heating mats which are positioned on ... the lower side of the panels which make up the floor," (page 4, line 37 – page 5, line 2) conventional heating mats separate from the other depicted elements

were not shown in the original set of figures. When element 40 was originally designated as “rigid insulation” and the identically shaped and positioned element on the opposing side of the page was originally unlabeled, it was understood to represent rigid insulation as well. The element 43 is now designated as a heating mat, and so either the same element is referred to by two numbers, or else a rather specific placement of heating mats is being depicted which lacks support in the original disclosure.

In the replacement figure 3, the addition of element 39 with an arrow pointing towards a ventilator and indicating a fluid flow from the first hollow chambers towards a ventilator represents new matter. Though the original disclosure states that "ventilators are positioned in the hollow chambers of the floor and/or the cargo hold, and these generate a forced flow of warm air through the hollow chambers," it does not provide for the uncertain relationship between the first hollow chambers 26 and the ventilator 39 depicted in the replacement figure 3.

Applicant is required to cancel the new matter in the reply to this Office Action.

Drawings

These objections to the drawings remain unresolved:

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the

termination of the second hollow chambers into the aircraft fuselage of claim 5;

first bleed air feed line of claim 6;

second bleed air feed line of claim 7;

electric heating mats of claims 10 and 11;

electric heating coils **and** wires of claim 12 (an embodiment with both must be shown);

ventilators of claim 13;

waste air exhaust into fuselage after flowing through panels of cargo hold door of claim 20;

mixing hot bleed air from the engine with warm waste air before conveyance to the first plurality of hollow chambers of claim 21;

mixing hot bleed air from the engine with warm waste air both before and after conveyance to the first plurality of hollow chambers of claim 22;

additional electric heating of claim 23;

must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

It is noted that reference character 46 appears in the specification and this particular objection to the drawings is rescinded.

The drawings are objected to because the dark fills make it difficult to understand the claimed invention. No area should use a solid fill. Additionally, though fig. 3 is disclosed to be a cross section of fig. 2, no cut line is visible in fig. 2 to know where the cross section is taken from. Such a line is visible in fig. 3, but unlabeled. The section line in fig. 3 must be labeled or removed. No new matter should be entered. The following is an excerpt from the MPEP regarding patent drawings:

(h) Views: The drawing must contain as many views as necessary to show the invention. The views may be plan, elevation, section, or perspective views. Detail views of portions of elements, on a larger scale if necessary, may also be used. All views of the drawing must be grouped together and arranged on the sheet(s) without wasting space, preferably in an upright position, clearly separated from one another, and must not be included in the sheets containing the specifications, claims, or abstract. Views must not be connected by projection lines and must not contain center lines. Waveforms of electrical signals may be connected by dashed lines to show the relative timing of the waveforms.

(1) Exploded views: Exploded views, with the separated parts embraced by a bracket, to show the relationship or order of assembly of various parts are permissible. When an exploded view is shown in a figure which is on the same sheet as another figure, the exploded view should be placed in brackets.

(2) Partial views: When necessary, a view of a large machine or device in its entirety may be broken into partial views on a single sheet, or extended over several sheets if there is no loss in facility of understanding the view. Partial views drawn on separate sheets must always be capable of being linked edge to edge so that no partial view contains parts of another partial view. A smaller scale view should be included showing the whole formed by the partial views and indicating the positions of the parts shown. When a portion of a view is enlarged for magnification purposes, the view and the enlarged view must each be labeled as separate views.

(i) Where views on two or more sheets form, in effect, a single complete view, the views on the several sheets must be so arranged that the complete figure can be assembled without concealing any part of any of the views appearing on the various sheets.

(ii) A very long view may be divided into several parts placed one above the other on a single sheet. However, the relationship between the different parts must be clear and unambiguous.

(3) Sectional views . The plane upon which a sectional view is taken should be indicated on the view from which the section is cut by a broken line. The ends of the broken line should be designated by Arabic or Roman numerals corresponding to the view number of the sectional view, and should have arrows to indicate the direction of sight. Hatching must be used to indicate section portions of an object, and must be made by regularly spaced oblique parallel lines spaced sufficiently apart to enable the lines to be distinguished without difficulty. Hatching should not impede the clear reading of the reference characters and lead lines. If it is not possible to place reference characters outside the hatched area, the hatching may be broken off wherever reference characters are inserted. Hatching must be at a substantial angle to the surrounding axes or principal lines, preferably 45 °. A cross section must be set out and drawn to show all of the materials as they are shown in the view from which the cross section was taken. The parts in cross section must show proper material(s) by hatching with regularly spaced parallel oblique strokes, the space between strokes being chosen on the basis of the total area to be hatched. The various parts of a cross section of the same item should be hatched in the same manner and should accurately and graphically indicate the nature of the material(s) that is illustrated in cross section. The hatching of juxtaposed different elements must be angled in a different way. In the case of large areas, hatching may be confined to an edging drawn around the entire inside of the outline of the area to be hatched. Different types of hatching should have different conventional meanings as regards the nature of a material seen in cross section.

l) Character of lines, numbers, and letters. All drawings must be made by a process which will give them satisfactory reproduction characteristics. Every line, number, and letter must be durable, clean, black (except for color drawings), sufficiently dense and dark, and uniformly thick and well-defined. The weight of all lines and letters must be heavy enough to permit adequate reproduction. This requirement applies to all lines however fine, to shading, and to lines representing cut surfaces in sectional views. Lines and strokes of different thicknesses may be used in the same drawing where different thicknesses have a different meaning.

(m) Shading. The use of shading in views is encouraged if it aids in understanding the invention and if it does not reduce legibility. Shading is used to indicate the surface or shape of spherical, cylindrical, and conical elements of an object. Flat parts may also be lightly shaded. Such shading is preferred in the case of parts shown in perspective, but **not for cross sections**. See paragraph (h)(3) of this section. **Spaced lines for shading are preferred**. These lines must be thin, **as few in number as**

practicable, and they must contrast with the rest of the drawings. As a substitute for shading, heavy lines on the shade side of objects can be used except where they superimpose on each other or obscure reference characters. Light should come from the upper left corner at an angle of 45 °. Surface delineations should preferably be shown by proper shading. **Solid black shading areas are not permitted, except when used to represent bar graphs or color.**

From MPEP 608.02

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claim **15** is objected to because of the following informalities: “by extrusion, in particular by continuous extrusion," is a range within a range limitation. Preferably, the

claim should either require profile elements produced by extrusion, or else profile elements produced by continuous extrusion. Appropriate correction is required.

Claim Rejections - 35 USC § 112

There are new rejections under 35 U.S.C. 112.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims **1-15 and 22** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim **1,** first hollow chambers "wherein each chamber has a first end, a second end, and is enclosed therebetween" (claim 1, lines 3-4) lacks support in the original disclosure. Though it may be generally understood that most objects have a first and a second end, it is not inherent of hollow chambers that they be enclosed, nor does the original disclosure provide for this condition, possibly because of the issues the language raises with regard to other requirements under 35 U.S.C. 112, as discussed below.

Regarding claim **7,** "a second bleed air feed line operatively connecting the second hollow chambers to a second supply of hot bleed air from the engine of the

aircraft," (claim 7, lines 4-6) lacks support in the original disclosure. Though the original disclosure provides for a first feed line associated with the first hollow chambers (for example, in page 3, line 18, lines 35-37), and that "several separate feed lines can also be used which each convey warm electronics waste air ... to the first hollow chambers" (page 4, lines 3-5), nowhere in the original specification is there support for a second feed line connecting a second supply of hot bleed air to the second hollow chambers.

Regarding claim **12,** the original disclosure provides support for electric heating coils or wires (page 5, lines 5-7), but not for both electric heating coils and wires (claim 12, line 4).

Regarding claim **22**, “mixing hot bleed air into from the engine with the warm waste air" (claim 22, line 3) lacks support in the original disclosure. Though support exists for mixing hot bleed air with the warm waste air, no support exists for mixing hot bleed air back into the engine with warm waste air. Additionally, there is no support for a second mixture of hot bleed air after the first hollow chambers but before the cargo door.

Claims **1-15** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The enclosure of the first hollow chambers in claim 1, lines 3-4 seems to prevent them from being in fluid flow with the warm waste air from the avionics

equipment, which presents an engineering difficulty not addressed in the specification, preventing one of ordinary skill in the art from making or using the invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims **1-15** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim **1,** it is unclear what is meant by the first hollow chambers being enclosed between a first and a second end. A pipe is generally enclosed, but not between its two most obvious ends, else it would be useless for conveying fluid. The examiner has rejected this claim for enablement using this interpretation, because it is not clear what other interpretation is meant, but the examiner does not believe the invention to have pipes sealed at both ends. Given the hot bleed air and warm waste air intakes as well as the fuselage exhausts, the examiner may not reasonably interpret this limitation to require a closed loop system. For purposes of application of art, this limitation has been interpreted to require chambers which generally define an area within.

Regarding claim **22,** it is not understood what is meant by "mixing hot bleed air into from the engine with the warm waste air." Possibly this limitation is meant to read, "mixing hot bleed air from the engine with the warm waste air?"

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims **1, 2, 9, 14, and 15** are rejected under 35 U.S.C. 102(b) as being anticipated by USPN-2799481 to Becker.

Regarding claim **1,** Becker teaches floor heating capable of installation in an aircraft, comprising a floor made up of heatable panels defining a plurality of first hollow chambers (col. 2, line 53 - col. 3, line 37; fig. 1: floor at 28, panels at 10, hollow chambers at 35), wherein each chamber has a first end, a second end, and defines an enclosure (these chambers in Becker are pipes, which by their nature define an enclosure, and have first and second ends. However, reference to col. 3, lines 13-28 will show that fluid enters a floor made from the panels 10 at one point, and may return to a heater "after having circulated through the various conduits," the entry point being considered as a first end, and the implied ending point being considered as a second end), and a feed line operatively connected to the first ends of the first hollow chambers (in col. 3, lines 13-28, Becker states that "it will be clear that the hot heating fluid flowing from the heater will enter the tubes at at least one section," stating an operative connection with the heat source), said feed line capable of supplying warm waste air which originates from the cooling of the aircraft's electronic equipment.

Regarding claim **2,** Becker teaches floor heating in accordance with claim 1, characterized in that the first hollow chambers extend in the longitudinal direction of the aircraft inside the panels (col. 3, lines 5-6).

Regarding claim **9**, Becker teaches floor heating in accordance with claim 1, characterized in that the floor panels are thermally uncoupled from a structure which supports the floor (col. 4, lines 3-6). The suspended position of the tubes from the panel are considered to thermally uncouple the heated portion of the panel from the supporting structure.

Regarding claim **14,** Becker teaches floor heating in accordance with claim 1, characterized in that the panels are provided with thermal insulation on their lower side (col. 4, lines 3-6).

Regarding claim **15,** Becker teaches floor heating in accordance with claim 1, characterized in that the panels are profile elements produces by extrusion (col. 4, lines 8-9).

Claims **1, 2, 6 and 13** rejected under 35 U.S.C. 102(b) as being anticipated by USPN-3203473 to Goode.

Regarding claim **1,** Goode teaches floor heating for an aircraft, comprising a floor (fig. 2, at 14) made up of heatable panels (the floor at 14 in fig. 2 is not likely a single continuous structure, but in the event that it is interpreted this way, the floor of Goode may be considered to comprise the panel at 14, and the panel at 17, which comprises a plurality of panels) defining a plurality of hollow chambers (fig. 2, at 16) wherein each chamber has first and second ends and enclose a space (see fig. 2; chambers at 16 originate at the center, have an end near the edge of the fuselage, and enclose a space), and a feed line (fig. 2, at 3; col. 2, lines 60-64: the duct may be considered a feed line) operatively connected to the first ends of the first hollow chambers (this

operative connection is shown in fig. 2, and described in col. 2, lines 13-29), said feed line considered capable of supplying warm waste air which originates from the cooling of the aircraft's electronic equipment.

Regarding claim **2,** Goode teaches floor heating in accordance with claim 1, characterized in that the first hollow chambers extend in the longitudinal direction of the aircraft inside the panels (figs. 1, 2; the spaces 16 extend longitudinally).

Regarding claim **6,** Goode teaches floor heating in accordance with claim 1, further comprising:

a first bleed air feed line operatively connecting the first ends of the first hollow chambers to a first supply of hot bleed air from the engine of the aircraft (fig. 2, at 6; col. 2, lines 3-29).

Regarding claim **13,** Goode teaches floor heating in accordance with claim 1, further comprising:

Ventilators positioned in the first hollow chambers capable of generating a forced flow through the first hollow chambers (col. 2, lines 13-29: jet pumps 12 are located in the hollow chambers and capable of generating a forced flow).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim **3** is rejected under 35 U.S.C. 103(a) as being unpatentable over Becker in view of USPN-5701755 to Severson.

Regarding claim **3,** Becker teaches floor heating in accordance with claim 1, with first hollow chambers. Becker fails to teach a feed line connecting the hollow chambers with an avionics bay of an aircraft.

Severson does teach a system whereby electronic equipment in an aircraft are cooled (Severson fig. 2, low temperature loads at 38; col. 2, line 56 teaches avionics), and the resulting waste air is vented to the aircraft cabin (Severson fig. 2, at 52; col. 3, lines 48-52). Though Severson does not teach the use of the hot waste air to specifically heat the floor of the aircraft, Severson does supply a heating medium and the floor panels disclosed by Becker require a heating medium. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the waste air from Severson as a heating medium in the panels of Becker for the purposes of heating the floor.

Claims **4 and 5** are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN-6311106 to Dupont in view of Becker.

Regarding claims **4 and 5,** Dupont teaches a cargo aircraft (Dupont fig. 2) with electronic equipment (Dupont col. 4, lines 6-17) with an aft located cargo hold door (Dupont fig. 2, at 18), wherein the door is generally contiguous with the floor. Dupont is silent on floor heating using heatable panels with first and second hollow chambers. However, Becker teaches a system for floor heating using heatable panels (Becker col. 1, lines 15-17: "unit for heating a floor;" fig. 1), wherein the panels have hollow chambers (Becker fig. 1, at 35). The aircraft of Dupont is meant to carry standard sized cargo containers for a variety of goods (col. 2, lines 35-39), and as some of the potential

goods may require temperatures above those found at cruise altitude, it would be advantageous to heat the cargo area of the aircraft. The heated floor of Becker is particularly suitable for this task because it is cheap, easily accessible for repair and provides a substantially flat top surface (Becker col. 1, lines 55-61). It would have been obvious to a person of ordinary skill in the art at the time of the invention to install the panels of Becker in the aircraft of Dupont for the purpose of heating the floor of the aircraft of Dupont, and further to install the panels both in the floor and in the loading ramp (Dupont, fig. 2, at 18), to prevent ice buildup around the aperture and allow the door to easily open upon landing. After such an installation, the aircraft would have both first and second hollow chambers, the second hollow chambers being considered those defined by the panels installed in the loading ramp of Dupont, wherein the first and second hollow chambers are in flow connection (Becker clearly means for all of the panels of Becker to be in flow connection in col. 3, lines 13-28, but in the event that this is not clear, it would have been considered obvious to a person of ordinary skill in the art at the time of the invention to place the first and second hollow chambers in flow connection). Regarding claim **5,** since the panels are being installed in the floor and ramp of an aircraft, the panels on the ramp defining the second hollow chambers are likely to extend to the end of the ramp, which when closed terminates into the fuselage, however, as the panels are installed in the floor or ramp of an aircraft, the second hollow chambers may be considered by definition to terminate into the fuselage wherever the furthest panel may be placed.

Claims **7 and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Dupont in view of Becker, Goode and USPN-3981466 to Shah.

Regarding claims **7 and 8**, Dupont teaches a cargo aircraft with an aft located cargo hold door (Dupont fig. 2, at 18), wherein the door is generally contiguous with the floor. Dupont is silent on using hot engine bleed air to heat first and second hollow chambers of panels in the floor and ramp of the aircraft. However, Becker teaches heatable floor panels with hollow chambers (Becker col. 1, lines 15-17, fig. 1, chambers at 35) which may be installed in the floor and cargo hold door of Dupont for the purpose of heating the cargo area to transport temperature-sensitive cargo, and once installed would comprise first hollow chambers defined by the panels of the floor and second hollow chambers defined by the panels of the cargo hold door.

Neither Becker nor Dupont teach the use of hot engine bleed air as a heating medium, nor do either teach operative connections with a supply of hot engine bleed air for both panels making up the floor and panels covering the cargo hold door. However, Goode teaches a system for heating the floor of an aircraft using engine bleed air (Goode col. 1, lines 28-30; col. 2, lines 4-29; fig. 2). Becker allows for multiple feed lines from the heating source to the floor (Becker col. 3, lines 18-25), and as a heating medium will tend to cool as it passes through the hollow chambers, it would be advantageous to connect direct lines to the panel system at multiple points; a natural location to place another feed line would be in the cargo hold door, as it is furthest from the engines and if engine bleed air is used as the heating medium, it would have cooled down considerably by this point. It would have been obvious to a person of ordinary

skill in the art to use bleed air from the engines of Dupont as the heating medium of Becker to heat the floor of the aircraft of Dupont, as in Goode, because the floor panels of Becker require a source of heating medium and hot engine bleed air is a medium that is already heated and readily available on an aircraft; in short, it would be obvious to run hot engine bleed air through the panels of Becker, once installed in Dupont, to heat the panels using a readily available source of heating medium. It would further have been obvious to a person of ordinary skill in the art to connect the panel system of Becker to the engine bleed both in the floor and at the cargo hold door, as allowed by Becker (Becker col. 3, lines 18-25), for the purpose of heating the floor uniformly instead of heating the fore of the floor more than the cargo hold door, particularly on a cold day (Goode indicates that it is desirable to keep a floor at a uniform temperature in Goode col. 1, lines 11-42. Additionally, Shah teaches a heating system using hot engine bleed air, wherein on cold days hot engine bleed air is supplied to the cabin directly as well as after having passed through other elements of the aircraft. See fig. 2, at 41, 50, 52, 82, 104, 106 and 98; col. 4, line 59 – col. 5, line 8). Regarding claim **8,** it is considered an inherent physical fact of pipes and feed lines that the mass flow rate through a passage is determined by the density and velocity of the fluid, as well as the cross sectional area of the passage.

Claims **10-12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Becker in view of USPN-4733057 to Stanzel et al. (Stanzel) and Goode.

Regarding claims **10-12**, Becker teaches floor heating in accordance with claim 1, but fails to teach electrical heating in addition to heated medium heating. Stanzel

teaches an electrically heated floor panel, using electric heating wires (Stanzel col. 2, lines 31-42 teaches elongate electrodes which conduct electricity and produce heat). Neither Stanzel nor Becker give a reason to use electric heating in addition to hot air heating. However, Goode teaches an aircraft heating system where an additional heating system is employed to heat the floor when a preexisting heating system fails to sufficiently heat the floor (Goode col. 1, lines 12-42). It would have been obvious to a person of ordinary skill in the art to replace the cover panels of Becker (Becker col. 3, lines 5-12: cover panel 28; also fig. 1, at 28) with electrically heated panels as in Stanzel, for the purpose of maintaining a uniform temperature on the floor (Goode col. 1, lines 35-42). In so doing, the heating portion of the heating mats will be on a lower side of the panels (Stanzel col. 4, lines 28-33 teach that the wires are covered in some form of insulation, so that they are on the lower side of that insulation, which is part of the panel), and the electric heating wires of Stanzel will be integrated with the hollow chambers of Becker, by enclosing the conduit in which they are seated.

Claims **16-20 and 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over Dupont in view of Becker and Severson.

Regarding claims **16-20 and 24**, Dupont teaches an aircraft with a floor and a cargo hold door (Dupont fig. 2, cargo hold door at 18), which is meant to carry a variety of goods (Dupont col. 2, lines 35-39). Dupont is silent on any floor heating. Becker teaches heatable floor panels with hollow chambers (Becker fig. 1, hollow chambers at 35) which are arranged longitudinally (Becker col. 3, lines 5-6), but fails to specifically teach warm waste air from electronic equipment as a heating medium. However,

Severson teaches a method of cooling aircraft electronic equipment wherein the waste air from this cooling passes through the cabin of the aircraft before continuing on to cool other electronic equipment (Severson fig. 2: air cools electronics at 38, enters the cabin at 52, exits the cabin at 50 and cools electronics at 40. Severson teaches 38 and 40 to comprise electronic equipment, such as avionics in col. 2, lines 54-56). It would have been obvious to a person of ordinary skill in the art at the time of the invention to install the heatable floor panels of Becker in the aircraft floor and cargo hold door of Dupont to keep any temperature sensitive cargo heated during transit, and to prevent icing of the hold door. In so doing, first and second pluralities of hollow chambers are defined by the panels of the floor and cargo hold door, respectively. The panels in the floor would be interconnected with the panels of the cargo hold door, as the hollow chambers of Becker are meant to be interconnected (Becker col. 3, lines 13-22), and so the heating fluid that flows through the chambers of the floor will flow through the chambers of the door as well. It would further have been obvious to a person of ordinary skill in the art at the time of the invention to include avionics equipment in Dupont as in Severson for purposes of navigation (Severson col. 2, lines 54-56), and to cool the avionics equipment as in Severson (Severson col. 1, lines 44-53, pumping air through the circuit shown in fig. 2), and after said cooling, to use the warm waste air as the heating fluid in the floor panels of Becker (Becker col. 3, lines 16-18) before cooling further electronic equipment (Severson col. 2, lines 44-53), to heat the floor of the aircraft and to cool its electronic equipment. In so doing, air that originates from the aircraft's avionics bay will be forced to flow through hollow chambers defined by panels forming the floor of the

aircraft and then into hollow chambers defined by panels in the cargo hold door before flowing out into other parts of the fuselage (the other electronic equipment of Severson), and such a flow pattern will have air flowing counter to the flight direction.

Claim **21** is rejected under 35 U.S.C. 103(a) as being unpatentable over Dupont in view of Becker and Severson as applied to claim 16 above, and further in view of USPN-6058725 to Monfraix.

Regarding claim **21,** Dupont in view of Becker and Severson provide a method of floor heating in accordance with claim 16, but fail to teach a step of mixing hot engine bleed air in with the warm waste air from the avionics bay. However, Monfraix teaches a method whereby the cabin of an aircraft is heated with hot engine bleed air (col. 1, lines 5-10), but whereby the hot engine bleed air is mixed with another source of air to achieve a desired temperature (Monfraix col. 2, lines 13-16, 48-51; col. 8, lines 30-32; fig. 1). It would have been obvious to a person of ordinary skill in the art to supplement the warm waste air heating of Dupont, Becker and Severson with hot engine bleed air as in Monfraix, for the purpose of heating the floor to a desired temperature for which neither hot bleed air nor warm waste air alone would have been appropriate. The mixing in Monfraix is seen to occur before the two streams of air pass on to their destination (Monfraix fig. 1, at 12), and so such an incorporation would involve mixing the waste air of Severson with the hot engine bleed air as in Monfraix before passage into the heating panels of Becker.

Claim **22** is rejected under 35 U.S.C. 103(a) as being unpatentable over Dupont in view of Becker, and Severson as applied to claim 19 above, and further in view of Monfraix and Shah.

Regarding claim **22,** Dupont in view of Becker and Severson provide a method of floor heating in accordance with claim 19, but fail to teach a step of mixing hot engine bleed air in with the warm waste air from the avionics bay either before the warm waste air passes into the panels forming the floor or as the warm waste air passes into the cargo hold door. However, Monfraix teaches a method whereby the cabin of an aircraft is heated with hot engine bleed air (col. 1, lines 5-10), but whereby the hot engine bleed air is mixed with another source of air to achieve a desired temperature (Monfraix col. 2, lines 13-16, 48-51; col. 8, lines 30-32; fig. 1). It would have been obvious to a person of ordinary skill in the art to supplement the warm waste air heating of Dupont, Becker and Severson with hot engine bleed air as in Monfraix, for the purpose of heating the floor to a desired temperature for which neither hot bleed air nor warm waste air alone would have been appropriate. The mixing in Monfraix is seen to occur before the two streams of air pass on to their destination (Monfraix fig. 1, at 12), and so such an incorporation would involve mixing the waste air of Severson with the hot engine bleed air as in Monfraix before passage into the heating panels of Becker. None of these reference teach a second addition of hot engine bleed air prior to a cargo hold door, however Shah teaches that in some conditions it is necessary to supply hot engine bleed air directly to a section of an aircraft to be heated in addition to allowing heating fluid to flow to it after passing through other portions of an aircraft to be heated (Shah col. 4, line 59

- col. 5, line 8; fig. 2: the bypass line 106 passes bleed air directly to the environmental control system while bleed air which has heated the fluid flowing through the heat exchanger at 82 also passes into the environmental control system). It would have been obvious to a person of ordinary skill in the art to direct a second flow of hot engine bleed air directly to the cargo bay door of Dupont to mix with the heated fluids of Severson and Monfraix which had already passed through the floor of the aircraft of Dupont, as in Shah, for the purpose of maintaining a desired temperature in the cargo hold door (Shah col. 5, lines 1-5).

Claim **23** is rejected under 35 U.S.C. 103(a) as being unpatentable over Dupont in view of Becker and Severson as applied to claim 16 above, and further in view of Stanzel and Goode.

Regarding claim **23,** Neither Dupont, Becker, nor Severson teach a method of floor heating wherein the panels forming the floor are additionally heated by electricity. Stanzel teaches an electrically heated floor panel, using electric heating wires (Stanzel col. 2, lines 31-42 teaches elongate electrodes which conduct electricity and produce heat). Stanzel also fails to give a reason to use electric heating in addition to hot air heating. However, Goode teaches an aircraft heating system where an additional heating system is employed to heat the floor when a preexisting heating system fails to sufficiently heat the floor (Goode col. 1, lines 12-42). It would have been obvious to a person of ordinary skill in the art to replace the cover panels of Becker (Becker col. 3, lines 5-12: cover panel 28; also fig. 1, at 28) with electrically heated panels as in

Stanzel, for the purpose of maintaining a uniform temperature on the floor (Goode col. 1, lines 35-42).

Response to Arguments

Applicant's arguments filed 7/16/2008 have been fully considered but they are not persuasive.

Applicant's arguments with respect to claims **1-24** have been considered but are moot in view of the new ground(s) of rejection.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., hollow chambers of claim 1 being in fluid communication with the cabin) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's argument that the Becker reference does not teach an aircraft or warm waste air from "the cooling of the aircraft's electronic equipment," a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

In response to applicant's arguments, the recitation "for an aircraft" has not been given patentable weight because the recitation occurs in the preamble. A preamble is

generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Anticipation under Becker:

Applicant asserts that because Becker does not disclose an aircraft, or electronics equipment, it cannot anticipate the claims. However, no aircraft is positively claimed in the claims to which Becker was applied to anticipate. Claim 1 cites floor heating “for an aircraft,” with hollow chambers “for" warm waste air from "the aircraft's electronic equipment." These are statements of intended use and do not positively recite an aircraft or an aircraft’s electronic equipment. None of claims 1-15 positively recite an aircraft. Becker is capable of heating the floor of an aircraft with warm waste air from electronics equipment, and as such does not have to teach an aircraft or electronic equipment in order to anticipate any of the claims it has been applied to anticipate.

Applicant’s assertion that an operative connection between the hollow chambers and any electronic equipment is not persuasive, since even as amended claim 1 only requires an operative connection between a feed line and the hollow chambers.

In the first indent of page 15, Applicant asserts that claim 1 requires a feed line, but without a corresponding reference to the applied art; it is not clear if or how this is an assertion of non-anticipation of the art.

Anticipation under Goode:

Applicant asserts that Goode does not teach hollow chambers of the type described in claim 1, because the hollow chambers of claim 1 are not in fluid communication with the cabin. Unless Applicant amends claim 1 to require this limitation, what happens to the air after it flows through the hollow floor of Goode is not relevant. The examiner additionally would like to point out claim 20, wherein the hollow chambers are claimed to be in fluid communication with the cabin; 20 does not depend from 1, but the examiner withheld restriction because it was believed that claims 1-15 and 16-24 were claiming the same invention.

Applicant asserts that claim 1 requires an operative connection between the hollow chambers and the supply of warm air from the electronic equipment. This is not the case. As stated previously, claim 1 requires an operative connection between a feed line and the first ends of the first hollow chambers. The source of the waste air in Goode is irrelevant, as the source of waste air in claim 1 is not positively claimed.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon

hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case:

Becker in view of Severson:

The heating panels of Becker are meant to convey “a heating fluid such as hot water or steam, etc.,” (Becker col. 3, lines 16-18) and Severson teaches an aircraft electronics cooling system whereby a heating fluid passes through an avionics bay of an aircraft and exhausts to a cabin, (Severson col. 3, lines 48-52). Becker requires a source of heating fluid, but is not particular about the source, and Severson uses the cabin of an aircraft as a heat sink for electronics equipment by venting warm waste air to a cabin, but is not particular about how the waste air exchanges heat with the cabin, only that it does. Using avionics waste air as in Severson as the heating fluid in Becker for the purposes of heating the floor of Becker, is an acceptable combination of

references with a real suggestion to combine: that of heating an area requiring conditioning. Applicant's interpretation of the Severson reference wherein the exhaust air from the avionics bay does not exhaust into the cabin is not supported by the Severson reference. The turbines and energy generation aspect of Severson are not proposed for integration into the invention of Becker. Applicant additionally asserts that the combination of Becker and Severson would defeat the intended purpose of Severson, but does not recite what purpose is defeated or how, nor are such arguments typically persuasive when applied to the modifying reference.

Becker in view of Goode:

Becker presents a heated floor made of panels with pipes for the passage of a heating fluid, as previously described. Applicant's assertion that the heating tubes have no openings is not understood; col. 3, lines 13-37 indicate that a floor would be made up of multiple panels with multiple tubes which would be interconnected with fittings, and that at some point the tubing is connected to a heater. Goode teaches a method of heating an aircraft floor with hot engine bleed air. Applicant asserts that the tubes of Becker would reduce the supply of air into the aircraft cabin of Goode, rendering Goode inoperable. The examiner must respectfully disagree as to the inoperability: a mere reduction in flow would by no means render Goode inoperable. Moreover, Goode is the modifying reference, and it is the operability of Becker that should be under question. Becker would not be rendered inoperable by the utilization of hot engine bleed air, nor has Applicant asserted this. The combination is not made without any objective reason, but with the purpose of heating a floor; Becker is a heated floor that requires a heating

fluid; Goode heats a floor with hot engine bleed air. One skilled in the art would not find it insurmountable to heat the floor of Becker with the hot engine bleed air of Goode.

Becker in view of Goode and Monfraix:

Applicant has taken the position that Becker and Goode are meant to be primary references, yet the wording of the heading: "Becker in view of Goode and Monfraix" indicates that only Becker is the primary. An objective reason is necessary to combine Becker with both Goode and Monfraix, but not to combine Monfraix into both Becker and Goode. Applicant additionally asserts that the resultant combination sufferers from “some deficiencies”, but the examiner cannot accept or refute such an argument without specifics.

Becker in view of Severson, Monfraix, Goode and Shah:

Applicant has stated this combination is implausible without giving a reason, and reiterates prior arguments that have already been addressed. Applicant asserts that Shah does not relate to heating the floor of an aircraft or any energy savings related to the use of warm waste air from electronics equipment, but since the examiner has not relied on these qualities being present in Shah, it is not understood how this is a problem. If Applicant means to suggest that Shah represents non-analogous art, the examiner asserts that as Shah is related to hot engine bleed air, environmental control systems of aircraft and heating in general, it is relevant to the other references.

Becker in view of Shah:

Applicant has asserted that Shah does not correct any deficiencies in Becker, but without reciting any specific deficiencies or why Shah does not correct them. Applicant

appears to rely upon the inability of one skilled in the art to combine "all these references" as reason why Shah cannot be incorporated into Becker, but as only one reference is incorporated into Becker in this case, this is not understood.

Applicant additionally makes general statements of nonobviousness, lack of reasons to combine “the varied cited references,” and asserts that such combinations are contrary to common sense, but the examiner cannot address these issues without any further specific examples.

Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

Applicant's arguments do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the amendments avoid such references or objections.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard R. Green whose telephone number is (571)270-5380. The examiner can normally be reached on Monday - Thursday 8:00 am - 6:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Mansen can be reached on (571)272-6608. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael R Mansen/
Supervisory Patent Examiner, Art Unit 3644

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